Claims 1-24 (canceled).


25. (previously presented) A method of dynamically undeploying services in a computing network, the method comprising:

receiving an undeployment trigger for a selected service;

responsive to receiving the undeployment trigger, determining one or more network locations where the selected service is deployed; and

responsive to receiving the undeployment trigger, effecting a dynamic undeployment by programmatically removing the selected service from one or more selected ones of the network locations;

wherein services comprise web services;

wherein receiving an undeployment trigger comprises receiving an undeployment trigger for a selected web service in the computing network;

wherein determining one or more network locations comprises determining one or more network locations where the selected web service is deployed in the computing network; and

wherein effecting a dynamic undeployment comprises effecting a dynamic undeployment by programmatically removing the selected web service from one or more selected ones of the network locations in the computing network.


26. (previously presented) The method according to claim 25, further comprising:

receiving client requests for the selected service; and

continuing to serve the received requests from the network locations other than the one or more selected ones from which the selected service was programmatically removed.


Claim 27 (canceled).

28. (previously presented) The method according to Claim 25 wherein the undeployment trigger is based upon network load at the network locations.

29. (previously presented) The method according to claim 25, wherein the undeployment trigger is an undeployment request issued by an origin server from which the selected service was initially deployed.

30. (previously presented) The method according to Claim 29, further comprising:

sending the undeployment request to all of the network locations;

shutting down the selected service at the network locations, responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of each network location;

shutting down the selected service at the origin server responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of the origin server; and

making the selected service unlocatable in the computing network.

31. (previously presented) The method according to claim 25, wherein the undeployment trigger is based upon usage of the selected service at the network locations.

32. (previously presented) The method according to claim 31, wherein the usage is an average number of client requests for the selected service within a predetermined time interval.

33. (previously presented) The method according to claim 31, further comprising:

comparing the usage of the selected service to a predetermined threshold, and sending the undeployment trigger when the usage falls below the predetermined threshold.

34. (previously presented) The method according to claim 33, wherein a value of the predetermined threshold may be modified over time.

35. (previously presented) The method according to claim 33, wherein a value of the predetermined threshold applies to a plurality of deployed services.

36. (previously presented) The method according to claim 33, wherein the predetermined threshold applies individually to the selected service.

37. (previously presented) The method according to claim 33, wherein a value of the predetermined threshold applies to all of the network locations.

38. (previously presented) The method according to claim 33, wherein a value of the predetermined threshold applies to the one or more selected ones of the network locations.

39. (previously presented) The method according to claim 33, wherein a value of the predetermined threshold is initially set when the selected service is deployed.

40. (previously presented) The method according to claim 33, further comprising:
obtaining the usage at periodic intervals for use when comparing the usage of the selected service to a predetermined threshold.

41. (previously presented) The method according to claim 40, wherein the obtaining the usage comprises obtaining the usage from all of the network locations.

42. (previously presented) The method according to claim 41, wherein obtaining the usage comprises obtaining the usage from representative ones of the network locations.

43. (previously presented) The method according to claim 41, wherein the programmatically removing occurs at a particular one of the network locations, and wherein the obtaining the usage comprises obtaining the usage from the particular one.

44. (previously presented) The method according to claim 25, further comprising:

monitoring a load on the computing network; and

triggering the dynamic undeployment when the monitored load meets a predetermined threshold.

45. (previously presented) The method according to claim 25, wherein programmatically removing the selected service further comprises issuing an undeployment request for the selected service to the one or more selected ones.

46. (previously presented) The method according to claim 45, further comprising:

receiving the undeployment request at a particular one of the network locations, the particular one being the selected one of the network locations from which the selected service is being dynamically undeployed; and

shutting down the selected service at the particular one, responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of the particular one.

47. (previously presented) The method according to claim 46, further comprising:

making the selected service unlocatable from a routing system.

48. (previously presented) A system for dynamically undeploying services in a computing network, comprising:

means for receiving an undeployment trigger for a selected service;

means for determining one or more network locations where the selected service is deployed responsive to receiving the undeployment trigger; and

means for effecting a dynamic undeployment by programmatically removing the selected service from one or more selected ones of the network locations responsive to receiving the undeployment trigger;

wherein services comprise web services;

wherein the means for receiving an undeployment trigger comprises means for receiving an undeployment trigger for a selected web service in the computing network;

wherein the means for determining one or more network locations comprises means for determining one or more network locations where the selected web service is deployed in the computing network; and

wherein the means for effecting a dynamic undeployment comprises means for effecting a dynamic undeployment by programmatically removing the selected web service from one or more selected ones of the network locations in the computing network.


Claim 49 (canceled).


50. (previously presented) A computer program product for dynamically undeploying services in a computing network, the computer program product embodied on one or more computer-readable media and comprising:

computer-readable program code that is configured to receive an undeployment trigger for a selected service;

computer-readable program code that is configured to determine one or more network locations where the selected service is deployed responsive to receiving the undeployment trigger; and

computer-readable program code that is configured to effect a dynamic undeployment by programmatically removing the selected service from one or more selected ones of the network locations responsive to receiving the undeployment trigger;

wherein services comprise web services;

wherein the computer-readable program code that is configured to receive an undeployment trigger comprises computer-readable program code that is configured to receive an undeployment trigger for a selected web service in the computing network;

wherein the computer-readable program code that is configured to determine one or more network locations comprises computer-readable program code that is configured to determine one or more network locations where the selected web service is deployed in the computing network; and

wherein the computer-readable program code that is configured to effect a dynamic undeployment comprises computer-readable program code that is configured to effect a dynamic undeployment by programmatically removing the selected web service from one or more selected ones of the network locations in the computing network.

Claim 51 (canceled).

52. (new) The method according to claim 25, wherein the undeployment trigger is based upon usage of the selected service at the network locations, and wherein the usage is an average number of client requests for the selected service within a predetermined time interval, the method further comprising:

sending the undeployment trigger to all of the network locations;

shutting down the selected service at the network locations, responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of each network location;

shutting down the selected service at the origin server responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of the origin server; and

making the selected service unlocatable in the computing network.

53. (new) The method according to claim 25, wherein the undeployment trigger is an undeployment request issued by an origin server from which the selected service was initially deployed, wherein the undeployment trigger is based upon usage of the selected service at the network locations, and wherein the usage is an average number of client requests for the selected service within a predetermined time interval, the method further comprising:

    sending the undeployment request to all of the network locations;

    shutting down the selected service at the network locations, responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of each network location;

    shutting down the selected service at the origin server responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of the origin server; and

    making the selected service unlocatable in the computing network.


54. (new) The system according to claim 48, wherein the undeployment trigger is based upon usage of the selected service at the network locations, and wherein the usage is an average number of client requests for the selected service within a predetermined time interval, the system further comprising:

    means for sending the undeployment trigger to all of the network locations;

    means for shutting down the selected service at the network locations, responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of each network location;

    means for shutting down the selected service at the origin server responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of the origin server; and

    means for making the selected service unlocatable in the computing network.

55. (new) The system according to claim 48, wherein the undeployment trigger is an undeployment request issued by an origin server from which the selected service was initially deployed, wherein the undeployment trigger is based upon usage of the selected service at the network locations, and wherein the usage is an average number of client requests for the selected service within a predetermined time interval, the system further comprising:

means for sending the undeployment request to all of the network locations;

means for shutting down the selected service at the network locations, responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of each network location;

means for shutting down the selected service at the origin server responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of the origin server; and

means for making the selected service unlocatable in the computing network.


56. (new) The computer program product according to claim 50, wherein the undeployment trigger is based upon usage of the selected service at the network locations, and wherein the usage is an average number of client requests for the selected service within a predetermined time interval, the computer program product further comprising:

computer-readable program code that is configured to send the undeployment trigger to all of the network locations;

computer-readable program code that is configured to shut down the selected service at the network locations, responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of each network location;

computer-readable program code that is configured to shut down the selected service at the origin server responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of the origin server; and

computer-readable program code that is configured to make the selected service unlocatable in the computing network.

57. (new) The computer program product according to claim 50, wherein the undeployment trigger is an undeployment request issued by an origin server from which the selected service was initially deployed, wherein the undeployment trigger is based upon usage of the selected service at the network locations, and wherein the usage is an average number of client requests for the selected service within a predetermined time interval, the computer program product further comprising:

computer-readable program code that is configured to send the undeployment request to all of the network locations;

computer-readable program code that is configured to shut down the selected service at the network locations, responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of each network location;

computer-readable program code that is configured to shut down the selected service at the origin server responsive to receiving the undeployment trigger, and removing executed code which implements the selected service from a run-time environment of the origin server; and

computer-readable program code that is configured to make the selected service unlocatable in the computing network.